



MATS UNIVERSITY



School of Sciences

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Master of Science

(ZOOLOGY)

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(2 YEARS FULL TIME POST GRADUATE PROGRAMME)

SEMESTER PATTERN

(2025 2027)



Syllabus M.Sc. ZOOLOGY

GENERAL INTRODUCTION OF THE DEPARTMENT

MATS School Sciences (MSS) was established with a vision to create technocrats in the applied branches of Biological and Chemical Sciences to convey updated scientific knowledge. In the school the performances of the students are constantly monitored by continuous assessment. The School believes in supplementing academic input of students with the help of regular Seminar, Guest Lectures, Industrial/Research Institute visits and encouraging the students to participate in National & International Seminars, Conferences and Workshops.

DEPARTMENT HIGHLIGHTS

- Research focus on frontier of Life Sciences and affordable healthcare
- Highly acclaimed scientists as faculty
- State-of-the-art Lab facilities
- Hand-on training on sophisticated equipments
- Academia – Industry interface
- Multidisciplinary research in affordable health care, Agriculture and Food

COURSE DESIGN

The department follows a unique course-design which is contemporary and cutting-edge. It includes modern and advanced papers/ subjects including the papers from Management/Science as given in the curriculum matrix

PEDAGOGY

- Chalk Board, LCD and Projector based teaching
- Research based teaching
- Project based learning
- Separate lab bench for each student

FACILITIES

State-of-the-art facilities include:

- Double beam UV- Visible Spectrophotometer, Cooling Centrifuge, Microfuge, Incubators, Microscopes, Laminar flow hoods, Colorimeter, Micro- and regular balance, Electronic Balance Autoclave, Glass distillation apparatus, Computers, Deep freeze, DNA/RNA & Protein Electrophoresis apparatus, Plant Tissue Culture racks with light arrangements, Shakers, BOD incubator & Orbital Shaking Incubator etc.
- Microbial cell culture
- Microtome
- Various Zoological Specimens
- Various Permanent Slides
- Conservation Biology Lab

FACULTIES



- Well experienced faculties from Academic Institutes and Industries
- Invited lectures by eminent scientists from different countries

M. Sc. Zoology: SCOPE AND CONTENT

Zoology is one of the most popular branches in Science that involves the study of animals and their biological processes. Zoology courses are offered at the graduate and postgraduate levels, both full-time and part-time. Candidates can also opt for Ph.D. in Zoology after completing their post-graduation. Candidates in this discipline are basically taught regarding animal anatomy, physiology, biochemistry, genetics, evolution, ecology, behavior, and conservation.

This a great **career** interest for people who are fascinated with nature and would not mind spending time understanding it. There are several specializations that the students pursuing the field can venture into. There are physiologists that study the metabolic processes of animals, then there are taxonomists who deal with the naming and the classification of the animal **species**, one can think of becoming embryologist whose only job is to study and focus on the early stages of the animal life. So similarly there are many such options that one can venture into depending on his/her capabilities and interests.

On choosing this career, the person specializing in the field will be referred to as a **zoologist**. On being a part of this field, one will be carefully have to study the behavior, characteristics, evolutionary trends of the different species of animals and those factors having a direct impact on them.

OBJECTIVES OF THE M.Sc. Zoology PROGRAM

1. To impart knowledge and skills in various aspects of zoology.
2. To train the students for industrial need and to pursue further education.
3. To develop human resource and entrepreneurs in zoology with the ability to independently start their own ventures or small biotech units in the field of zoology.
4. Understand modern zoology-practices and approaches with an emphasis in technology application in pharmaceutical, medical, industrial, environmental and agricultural areas.
5. Become familiar with public policy, bio-safety, and intellectual property rights issues related to zoology applications nationally and globally
6. Gain experience with standard molecular tools and approaches utilized: to manipulate genes, gene products and organisms.
7. Develop skills in international teamwork and research collaboration.

ELIGIBILITY FOR ADMISSION:

Interested aspirants for M.Sc. Zoology degree need to fulfill the below mentioned minimum eligibility criteria.

- ☐ Completion of UG (10+2+3) level of education.
- ☐ Biology as one of the subjects at UG level

Instead of biology, one may even have had any subject related to biological sciences as one of the main subject of study.

PROGRAM OUTCOME:

1. Postgraduates will be able to apply knowledge, concepts to solve issues related to their course.
2. Postgraduates will have ability to identify problems related to their subjects.
3. Postgraduates will have ability to analyze and derive valid conclusions with fundamental knowledge in their respective



subjects.

4. Post graduates upon the needs of the environment and society, will be able to fulfill the same in the form of solutions within the safety limit of prevalent rules and guidelines.
5. Postgraduates will have ability to design, conduct experiments, analyze and interpret data for investigating problems in their respective fields.
6. Postgraduates will have the ability to select and apply appropriate tools and techniques.
7. Postgraduates will have knowledge for assessing societal, health, safety and legal aspects and the duties as responsible citizens of the country.
8. Postgraduates will have the knowledge of the need for sustainable development.
9. Postgraduates will have the knowledge of ethics and regulatory norms of their respective course.
10. Postgraduates will have oral, written communication skill along with team spirit.

PROGRAM SPECIFIC OUTCOMES:

After successful completion of the M.Sc. Zoology program, students will be able to:

1. **PSO1 – In-depth Understanding:** Gain specialized knowledge in areas like animal physiology, cell and molecular biology, genetics, entomology, endocrinology, developmental biology, and evolutionary biology.
2. **PSO2 – Experimental Proficiency:** Design, conduct, and interpret biological experiments using laboratory techniques, field studies, and modern tools like PCR, chromatography, and microscopy.
3. **PSO3 – Interdisciplinary Integration:** Integrate zoological knowledge with disciplines like ecology, biotechnology, environmental science, and computational biology.
4. **PSO4 – Field and Taxonomic Skills:** Conduct biodiversity assessment, species identification, wildlife surveying, and ecological monitoring using field tools and taxonomic keys.
5. **PSO5 – Career and Research Orientation:** Prepare for higher studies (Ph.D.), teaching, civil services, or employment in research institutes, NGOs, environmental agencies, and biotech companies.

CAREER PROSPECTS:

- The Zoology Industry is constantly growing and in the past 10 years, human resources in the field have grown drastically. Today, the Indian zoology sector comprises of lot many companies and bio suppliers, generating ample amounts of revenues. Zoology industry has rapid growth rate per annum. Wildlife Rehabilitators. It involves the treatment, care and feeding of injured, ill and wounded non-domestic animals, as well as caring for orphaned and abandoned animals, Wildlife Educators, Researchers, National Parks/Wildlife Sanctuary Managers, Animal Breeders, Education.

THE MAIN JOB SECTORS ARE AS FOLLOWS:

Candidates who have completed M.Sc in Zoology have the option for higher education programs like Ph.D in Life Science. Also these candidates can join as Junior Research Fellow or Senior Research Fellow in firms like National Institute of Occupational Health.

ATTENDANCE:

A candidate shall be deemed to have undergone a regular course of study in the University, if he/she has attended at least 60% of the lectures in each subject will be at least 75% in the aggregate of lectures, tutorials and practical in order to be eligible to appear in the Final Examination.



SCHEME OF EXAMINATION, EVALUATION AND DISTRIBUTION OF MARKS

- 1 The overall weightage of a course in the Syllabi and Scheme of Teaching & Examination shall be determined in terms of Marks assigned to the course.
- 2 The evaluation of students in a course shall have two components unless specifically stated otherwise in the Scheme of Teaching & Examination and Syllabi:
 - (i) Evaluation through a semester-end examination (University Examination Marks)
 - (ii) Continuous evaluation by the teacher(s) of the course.
- 3 Continuous Evaluation (Internal Marks)

i) Theory courses

The division of internal marks will of 50% marks for mid semester examination and 50% of marks for the internal class tests. There shall be three class tests held during each semester. The three class tests shall ordinarily be held after 4 weeks, 8 week s and 12 weeks of teaching in accordance with the University Academic Calendar.

(ii) Practical/Laboratory courses

The total internal marks in practical/Laboratory courses shall be based on performance in the laboratory, regularity, practical exercises/assignments, quizzes, etc. The assessment shall be given at three nearly equi-spaced intervals.

Evaluation through a semester-end examination

The distribution of weightage for various components of the evaluation shall be as given below:

	Bachelor's degree/ Under-graduate diploma	Master's degree/ Post-graduate diploma
A. THEORY COURSES		
(i) Semester-end examination	70%	70%
(ii) Continuous evaluation by the teachers	30%	30%
B. PRACTICAL/LABORATORY COURSES		
(i) Semester-end examination	70%	70%
(ii) Continuous evaluation by the teachers	30%	30%
C. DISSERTATION/THESIS		
(i) Assessment by External Examiner	70%	70%
(ii) Assessment by Internal Examiner	30%	30%

PASSING MARKS:

For postgraduate students, obtaining a minimum of 45% marks in aggregate in each course shall be essential for passing the course and earning its assigned credits. A candidate, who secures less than 45% of marks in a course, shall be deemed to have failed in that course.

GRADING SYSTEM:

For UG:

80% and above – “10 Grade Point” and Letter Grade “O” (Outstanding)

40% and above but below 45% - “Grade Point 4” and Letter Grade “P” (Pass)

For PG:

80% and above – “10 Grade Point” and Letter Grade “O” (Outstanding) 45% and above but below 50% - “Grade Point 4” and Letter Grade “P” (Pass)

PROGRAM DURATION:

The maximum permissible period for completing a program for which the prescribed program duration is **n semesters**, shall be **(n+2)** semesters. All the program requirements shall have to be completed in **(n+2)** semesters.

ATKT criteria:

ATKT Candidate means a candidate who failed in not more than forty percent of the total number of Core and Core bracket papers, excluding the Practical Examination/Project Work/Viva Voce Examination in the Semester Examination and is appearing in the Examination same semester again which is organized with the next Semester Examination. Forty percent (of the total number of Core and Core bracket papers) will be rounded off to higher side in case it is not a whole number. In case a Students fails or was absent in Practical Examination/Project Work/Viva Voce Examination, he/she may be allowed to have ATKT exam on his/her own expenses

